

[O215] ***Candida albicans*** signalling alcohols as players of cellular cross-talk with ***Candida tropicalis***

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Objective: *Candida* species are the most common agents of opportunistic mycoses, which are often associated with biofilms. *Candida albicans* and *Candida tropicalis* biofilms develop most frequently in intracardiac prosthetic devices and voice prostheses with an infection risk of 1–3% and 50–100%, respectively. In natural environments polymicrobial biofilms are observed, but interactions between organisms are not well understood. This study focused on the evaluation of the effect of recently characterised *C. albicans* alcohols signalling molecules, in *C. tropicalis* regarding two hypothetical clinical scenarios: *C. tropicalis*, adhered and within a mature biofilm.

Methods: All experiments were performed in RPMI medium and cells (initial cell density of 1×10^6 cells/ml) grown at 37°C, 130 rpm. For all experiments, endpoints were determined at the end of 24 h. *C. tropicalis* ATCC 750 biofilms were developed on the surface of microtiter plates. *C. albicans* CECT 1472 secreted alcohols were added after 3 h of adhesion or to 48 h grown biofilms. Isoamylalcohol, 2-phenylethanol, 1-dodecanol, nerolidol, farnesol and tyrosol were independently assayed at physiological levels. Biofilm quantification was performed using two different approaches: total biomass by crystal violet staining and quantification of biofilm cells activity by the reduction of a tetrazolium salt (XTT).

Results: At initial biofilm stages *C. tropicalis* metabolic cell activity was significantly decreased by isoamylalcohol, 2-phenylethanol, E-nerolidol and tyrosol treatments, while cellular mass was positively affected by isoamylalcohol but negatively by E-nerolidol. Nevertheless, mature biofilms were more resistant to the action of these alcohols. Specifically, only isoamylalcohol induced alterations, with the same response pattern observed at earlier stages.

Conclusion: Results obtained show that *C. albicans* extracellular alcohols regulate *C. tropicalis* behaviour, depending on biofilm growth time, suggesting that *C. tropicalis* mature biofilms are more resistance to *C. albicans* signalling crosstalk.

Session Info: Molecular approaches to biofilm biology

Session Type: Oral presentations

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